

REMARKS

The Office Action dated December 29, 2005 has been carefully considered. Claims 1, 2 and 4 are in this application.

The previously presented claims were rejected under 35 U.S.C. § 103 as obvious in view of previously presented U.S. Patent No. 3,904,652 to Frank in combination with U.S. Patent No. 3,366,648 to Kerr. Applicants respectfully submit that the teachings of these references do not teach or suggest the invention defined by the present claims.

As described on page 10, lines 15-24, the conditions of starting up a reactor of the present claims, make it possible to decrease the amount of diluting gas to be used and the amount of energy used for adjusting the diluting gas and shorten the duration of the operation of starting up the reactor as well. In contrast, when a reactor is started by a conventional method, it is necessary to lower the concentration of the oxygen contained in the gas supplied to the reactor to a range of less than the limiting oxygen concentration by supplying diluting gas. The use of a diluting gas in a large amount is not economical because the gas is expensive (see page 4, line 19 through page 5, line 5 of the present application).

The Examiner indicated that Frank teaches a low oxygen concentration so as to avoid the flammable limit of the system and therefore it is plausible to assume that the Frank's concentration of oxygen is less than the limiting concentration limiting oxygen concentration. Applicant submits that even if the Examiner's characterization of Frank is correct, Frank's teachings are opposite to the present invention since Frank teaches that the oxygen concentration is less than the limiting oxygen concentration. As described in Frank at col. 3, lines 56-62, Frank teaches that in order to maintain the oxygen concentration below the lower limit, an inert gas of nitrogen is added to the process. As described above, the use of a diluting gas in a large amount is not economical. Accordingly, Frank teaches the above-described conventional method. In contrast, the invention defined by the present claims teaches that oxygen concentration is not less than the limiting oxygen concentration thereby making it possible to decrease the amount of diluting gas used. Thus, Frank teaches away from the present invention by teaching that the oxygen concentration is decreased below the explosion limit of the oxygen to avoid the explosion range which teachings do not disclose or

suggest that the oxygen concentration during start up is not less than the limiting oxygen concentration.

The Examiner further states that Kerr offers guidance for the concentration of raw material in the presence of oxygen and a catalyst. However, Kerr does not teach or suggest the invention defined by the present claims that oxygen concentration is not less than the limiting oxygen concentration. Further, Kerr does not suggest to increase the concentration of the raw material gas until the steady state and does not cure the deficiencies of Frank.

The feature of the concentration of oxygen in accordance with the present invention resides in passing a range during starting up of the reactor in which the concentration of the raw material is less than the concentration of the lower explosion limit of the raw material and the concentration of oxygen is not less than the limiting oxygen concentration (excluding 0% of concentration of oxygen). However, neither Frank nor Kerr teach this feature. Rather, Frank's disclosure corresponds to prior art. Therefore, even if Frank is combined with Kerr, it suggests only a method for controlling the concentration of oxygen below the lower explosion limit and raw material gas.

In addition, both references do not disclose or suggest how to start up a reactor, especially by causing a raw material to be oxidized and a molecular oxygen-containing gas to pass a range in which the concentration of the raw material is less than the concentration of the lower explosion limit of the raw material and the concentration of oxygen is not less than the limiting oxygen concentration, but excluding the concentration of said raw material of 0 vol. %, and ii) then for reaching steady state causing a range in which the concentration of the raw material is less than the concentration of the lower explosion limit of the raw material and the concentration of oxygen is less than the limiting oxygen concentration, thereby reaching the steady state.

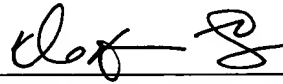
Accordingly, the invention defined by the present claims is not obvious in view of Frank in combination with Kerr.

The application is now believed to be in a condition for allowance and an early notification thereof is respectfully requested. The Examiner is invited to contact the undersigned should he believe this would expedite prosecution of this application. It is

believed no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

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